SIEMENS

MOBILETT XP Digital

SP

Installation and Startup

System

General Hardcopy Camera Information

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General

There are no existing releases or qualifications for connecting Dicom Hardcopy cameras in connection with Mobilett XP Digital.

If necessary, connectivity and image quality problems with hardcopy cameras need to be handled directly by HSC24 and escalated to the business unit.

Subsequent descriptions provided in this document are based on recommendations from Canon and serve as a reference.

The subsequent listing contains the current DICOM cameras and the optimal parameter settings recommended by Canon.

Conventions and Abbreviations

DICOM

HSC	Headquarter Support Center
DICOM	
CXDI	Canon Imaging System
SMPTE	Test Image

Recommended DICOM Hardcopy Cameras (Canon)

AGFA Drystar 3000
Fuji CR-DPL/LPD+FN-PS551
Fuji DRYPIX3000
Kodak DryView8500+
Kodak DryView8700+PacsLink IMN9410
Kodak DryView8900
Kodak KELP2180+Spooler100
Kodak MLP190/160LP
Konica Drypro722+Printlink
Konica Li-62P+Printlink

Optimal default parameters (Reference Canon)

Name	Default Parameter	Comment
Agfa DryStar 3000	**-A 320 -T NO -M CUBIC -m 140 -S "PERCEPTION_LUT=200"** PixelPitch = 80 FilmSize1 = 14x17 IN 4256, 5174)	• -T No, Trimming OFF • -M Cubic spline interpolation • -m Smoothing: slightly sharp (edges emphasized)· • -A Maximum density: 3.20· • -S "PERCEPTION_LUT=200(LINEAR)" (If the output fails to be linear with "LINEAR", on-site adjustments with the printer manufacturer must be performed.
Fuji CR-DPL/LPD/FM-DPL + FN-PS551	**-A 300 -T NO -M CUBIC -m MEDIUM -S -P NORMAL -B BLACK -k 2 -S ?** PixelPitch = 100 FilmSize1 = 14x17 IN 53520, 4280 FilmSize2 = 14x14 IN 3520, 3490 FilmSize3 = 11x14 IN 2540, 3600	Site Dependent • -T No, Trimming OFF· • -M Cubic spline interpolation· • SHARP, MEDIUM or SMOOTH can be selected from among the presettings as the smoothing type. An AVR of approx. 0.8 is appropriate. The setting is entered for each printer on-site. • With -k 2, the Window Center/Level for DICOM TAG (0028,1050) and (0028, 1051) are also deleted.· • Maximum density: 3.00 A density of 3.20 cannot be designated. For this reason, a non-linear LUT is required. • -S ?should be adjusted at the user site.·This parameter is for the corresponding table in a printer with LUT in CXDI. For example, enter -S 1 here, then set table number (liner) to correspond to LUT 1 in the gateway of the printer. The table number should be selected by comparing various SMTPs based on customer preference. The LUT can be selected from among the eight presettings (1 through 8) using Config Info. The setting is entered for each printer on-site

Name	Default Parameter	Comment
Fuji DRYPIX3000	**-A 300 -T NO -M CUBIC -m MEDIUM -P NORMAL -k 2 -S 1** PixelPitc h= 100 FilmSize1=14X17 IN 3520, 4280, 4280, 3520	Site Dependent • -T No, Trimming OFF· • -M Cubic spline interpolation· • SHARP, MEDIUM or SMOOTH can be selected from among the presettings as the smoothing type. An AVR of approx. 0.8 is appropriate. The setting is entered for each printer on-site. • -S should be adjusted at the user"s site.·LUT can be selected from among the eight presettings 1 through 8 using Config Info. The setting is performed for each printer on-site.· • With -k 2, the Window Center/Level for DICOM TAG (0028,1050) and (0028, 1051) are also deleted.· • -A Maximum density: 3.00 A density of 3.20 cannot be designated.For this reason, a non-linear LUT is required.

Name	Default Parameter	Comment
Kodak Imation Dry View 8500+ **Kodak Imation DryView 8700 + Pacs LINK IMN 9410**	-A 310 -T NO -M CUBIC -m ? -S LUT=0?, 2? PixelPitch = 78 FilmSize1=14x17 IN4096, 5220	Site Dependent • -T No Trimming OFF· • -M Cubic spline interpolation· • Smoothing must be adjusted at the user"s site.· • -A Maximum density: 3.10· • S LUT = m, n is designated as the Config Info but m and n are adjusted on-site by the Kodak service engineer. Basically, adjustment is performed to achieve a linear output. Select LUT=0,1 or LUT=0,2 Choose either one by comparing various SMTPs in linerlity and max density • -m ? ?This parameter is transfered to DICOM Basic Film Box(2010,0080). If a customer accept default setting in a DICOM printer, "-m?" should be deleted and then automatically the printers default setting is used. Normally a default setting in a printer is used. •
Kodak DryView8900	**-A 320 -T NO -M CUBIC -S "CS000" -r** PixelPitch=39 FilmSize1=14X17 IN,9100,11037,11037,9100 FilmSize2=14X14 IN,9100,9087,9087,9100 FilmSize3=11X14 IN,7137,9100,9100,7137 FilmSize4=10X12 IN,6490,7767,7767,6490	• -T No, Trimming OFF· • -M Cubic spline interpolation· • -m Smoothing must be adjusted at the user"s site.· • -A Maximum density: 3.10· • -S LUT = m, n is designated as the Config Info but m and n are adjusted on-site by the Kodak service engineer. Basically, adjustment is performed to achieve a linear output. • "CS000" Curve shape 0 (density linear) as Config Info • -r Transfer pixelpitch for designating the request image size

Name	Default Parameter	Comment
Kodak KELP2180 + Kodak Print Spooler Model 100	**-A 320 -T NO -M CUBIC -m NORMAL -S CS000** PixelPitch = 79 FilmSize1=14 x 17 IN 4090, 5120 FilmSize2=11 x 14 IN 3194, 4096	• -T No, Trimming OFF· • -M Cubic spline interpolation· • -m Smoothing: normal· • -A Maximum density: 3.20· • "CS000" Curve shape 0 (density linear) as Config Info • -S LUT = m, n is designated as the Config Info but m and n are adjusted on-site by the Kodak service engineer. Basically, adjustment is performed to achieve a linear output.
Kodak MLP190	**-A 320 -T NO -M CUBIC -m NORMAL -S CS000** PixelPitch = 80 FilmSize1 = 14 x 17 IN 4096, 5120	• -T No Trimming OFF • -M Cubic spline interpolation· • -m Smoothing: normal· • -A Maximum density: 3.20· • "CS000" Curve shape 0 (density linear) as Config Info • -S LUT = m, n is designated as the Config Info but m and n are adjusted on-site by the Kodak service engineer. Basically, adjustment is performed to achieve a linear output.

Name	Default Parameter	Comment
Konica Drypro 722 + Printlink	**-A 320 -T NO -M CUBIC -m 2 -S "KC_LUT=1" -O PORTRAIT -P NORMAL -B BLACK** pixelpitch = 80 FilmSize1 = 14x17 IN 4424, 5324 FilmSize2 = 14x14 IN 4424, 4372 FilmSize3 = 11x14 IN 3436, 4424	• -T No Trimming OFF· • Cubic spline interpolation· • -m Smoothing type1: BILINEAR2: Sharp by spline interpolation3: Slightly weak by spline interpolation4: Weaker by spline interpolation· • -A Maximum density: 3.20 Maximum density 3.20 could not be achieved before. • -B Border Black/ White/ Dx100 • -P polarity Normal/ Reverse
Konica Li-62P + Printlink	**-A 320 -T NO -M CUBIC -m 2 -S "KC_LUT=1" -O PORTRAIT -P NORMAL -B BLACK** pixelpitch = 80 FilmSize1 = 14x17 IN 4268, 5108 FilmSize2 = 14x14 IN 4268, 4104 FilmSize3 = 11x14 IN 3204, 4268	• -T No Trimming OFF· • -M Cubic spline interpolation· • -m Smoothing type1: BILINEAR2: Sharp by spline interpolation3: Slightly weak by spline interpolation4: Weaker by spline interpolation· • -A Maximum density: 3.20 Before, maximum density 3.20 could not be achieved. • -B Border Black/ White/ Dx100 • -P polarity Normal/ Reverse

Printer Model Specifications (Reference Canon)

Name	Specifications	Maximum equivalent area in CXDI
Kodak KELP2180 + Kodak Print Spooler Model 100	• If an expansion error occurs in the spooler when Multi Display Format is used, the print queue cannot be processed.· • The system is in a critical state when a Failure status is indicated. A user message is displayed indicating this state, and images are no longer transferred. (Fully installed)· • During the Warning status, image transfer is performed while the user message is displayed (Fully installed).· • If operation is aborted due to an error, a new association could not be established when the data was resent from the CXDI. GW was reset to recover the error.· • Inserting annotations in the image can lead to problems at the hospital. In the QCW, use annotations that are outside of the image.· • The designated film size is 11 x 14 inch film, and automatic selection of the magazine and printing has been confirmed.· • Annotations inside the image are problematic in the US and EU. For this reason, although DICOM annotation was used, it was not printed. Although annotation can be transferred without any errors in DICOM, an annotation error occurred in the log when transferring from the gateway to the 2180, and printing was not performed. Data was transferred from KCR to the validation tool, and the DICOM transfer method was compared to CXDI. However, the only differences were in the image size, aspect ratio, and annotation position.· • Although the annotation position is 1 in terms of conformance, it is 0 as sent from KCR. The result was the same even after the change.	
Agfa DryStar 3000	80 mm x 4256 x 5174· • In the standard Agfa system, the annotation option is selected. Therefore, the full image area will not be printed correctly unless you ask the serviceman to deselect the annotation option.	2128 x 2587 (@160 mm)

Name	Specifications	Maximum equivalent area in CXDI
Kodak KELP2180 + Kodak Print Spooler Model 100	79 mm x 4090 x 5120 (value after passing through the print spooler)· • The settings above are the size of the effective area when the image passes through the print spooler and the image is plotted up to the annotation area. In other words, these settings do not display an annotation area, instead handling it as an image area.· • If the data is transferred without setting [Image creation in CXDI], the Requested Image Size setting is used in DICOM. In this case, the annotation area is automatically displayed in the 2180 printer. As a result, a maximum image area of 79 mm x 4090 x 4996 must be designated. In this case, the CXDI relies on the 2180 for image rotation (Film Orientation), but images larger than 1.7 MB cannot be rotated by the 2180. Therefore, operation without the setting for [Image creation in CXDI] cannot be performed in the 2180. (Although operation is possible by setting Requested Image Size only for using DICOM without the setting for [Image creation in CXDI], this option is not installed in the CXDI.)· • Although the resolution of the printer itself is 79 mm x 4090 x 5260, this complete resolution cannot be used when the image passes through the spooler. When "_" is used in AE Title, the association is rejected. Use the Disable function for N-EVENT-REPORT to disable this setting. The FilmSize parameter can be used. The MediaType (BLUE, CLEAR) parameter is also supported.· • Although the Film Orientation parameter is supported up to 1.7 MB, in actuality, DR images cannot be rotated. Like the DryView8700, the images must be rotated by the CXDI side.· When Requested Image Size is expanded, the maximum plotting size is limited (79 um x 4090 x 4996) so that the annotation area can be obtained. • When a Requested Image Size expansion error occurs, the image is interpolated and printed at the suitable size. In this case, the error does not return to the CXDI side. For example, the image is printed at 310 mm even if 326 mm is designated.·	

Name	Specifications	Maximum equivalent area in CXDI
Fuji CR-DPL /FM-DPL + FM-PS551	100 mm x 3520 x 4280 (value after passing through the print spooler)· • The settings above are the allowable area size in a configuration not using annotation.· • Annotation will be supported by the next version. Annotation is currently possible in US-ASCII only. IDs are designated 1 to 6 and correspond to the top left, top center, top right, bottom left, bottom center, and bottom right, respectively. The maximum area size with annotation support is 3500 x 4170 for 35 cm x 43 cm and 2538 x 3522 for B4.· • Use the Disable function for N-EVENT-REPORT to disable this setting.· • A function is provided to disable warning messages from being returned. 0107 (Attribute list error) Return/Not return - 0116 (Attribute Value out of Range) Return/Not return - B604 (Image has been demagnified) Return/Not return· • The Film Size parameter can be used. The Media Type (BLUE, CLEAR) parameter can also be used. · • The Film Orientation parameter is fully supported.· T • he following presets are made so that LUT has the DMAX = 3.2D equivalent curve required by CXDI. Gamma type #17 (SAR system) **Point 1** Density 1.57 Shift 0.10 Contrast 1.00 **Point 2** Density 2.29 Shift 0.15 Contrast 1.00	2200 x 2675 (@160 mm)

Name	Specifications	Maximum equivalent area in CXDI
Imation DryView 8700+8800	78 mm x 4096 x 5220 Note: The 8700 printer cannot display in landscape orientation. Also, the maximum density is 3.1. If the 8800 box is not added, this printer cannot be used by the CXDI. However, it can be used starting from CXDI version 2.0.· • If there is an Imager Pixel Spacing tag (0018, 2264), the imager will fail.	1996 x 2544 (@160 mm)
Kodak MLP190	80 mm x 4096 x 5120	2048 x 2560 (@160 mm)

Linearity Check of Printer Image Density 15

Purpose

An SMPTE image is used to check whether the density linearity of the image printed out by the printer and the image displayed on the high-definition monitor matches the density linearity of the image transferred by the CXDI.

Notes

This check should be performed before the procedure in the section "Operating Unit Gamma Correction".

The following adjustments and checks should be completed before performing this procedure.

1. A) The printer and high-definition monitor connections and setting adjustments should be completed. The printer and monitor image output settings should be set to LINEAR.

   For example, if the KODAK MLP190 is connected, the printer parameter "-S configuration" must be set to "-S CS000". For other printers, refer to "Printers and Parameter Examples Reference" in "Network Connections," and set the curve shape to 0 (density linear).
2. B) Be sure to calibrate the printer and high-definition monitor units separately before performing this procedure.
3. C) When the imaging screen is "tray type," change it to "category type" by selecting: System -> SETUP MENU -> CUSTOMIZE DISPLAY.

Rough adjustment

- Start up the CXDI system.
- Adjust the brightness and contrast of the touch panel screen for optimum visibility.
- On the exposure screen, select the exposure mode "SMPTE" and wait until "READY" appears.

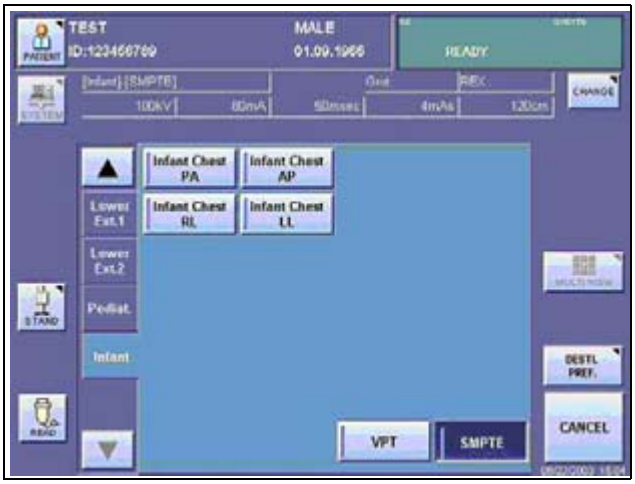

Fig. 1: SMPTE call

- Press the exposure switch on the X-ray generator. After the exposure, press the END STUDY button. Transfer the SMPTE pattern image to the printer or the high-definition monitor.

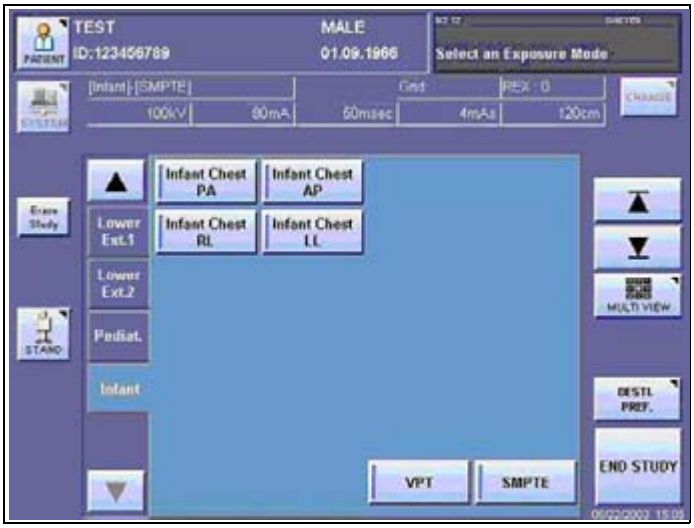

Fig. 2: SMPTE End Study

- Measure the densities of the 11 locations (0% to 100%) of the test image grayscale on the film or on the monitor.(Fig. 3 / p. 18)
  - * Use a densitometer to measure the SMPTE image density on the film.

    Use the gradation analysis software to measure the SMPTE image density on the high-definition monitor.
  - * The data for the SMPTE test image grayscale transferred by the CXDI are the values for the maximum density (3.20 in the case of the MLP 190) in the printer settings which have been changed in 11 uniform steps.

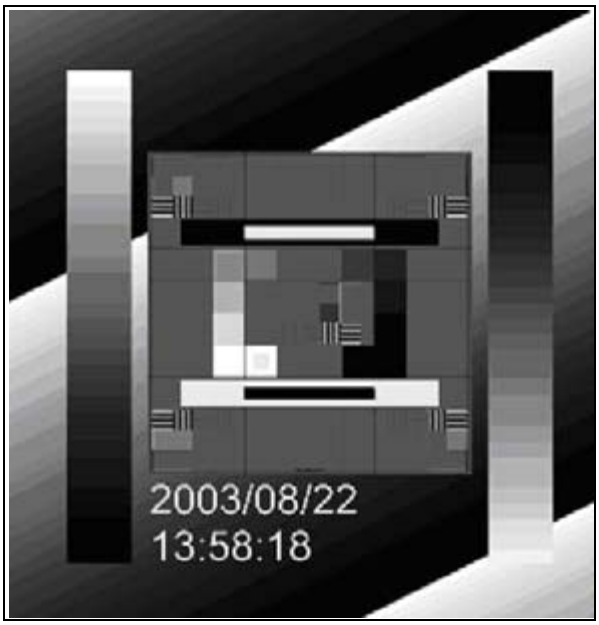

Fig. 3: SMPTE

- Create the graph below based on the data measured.

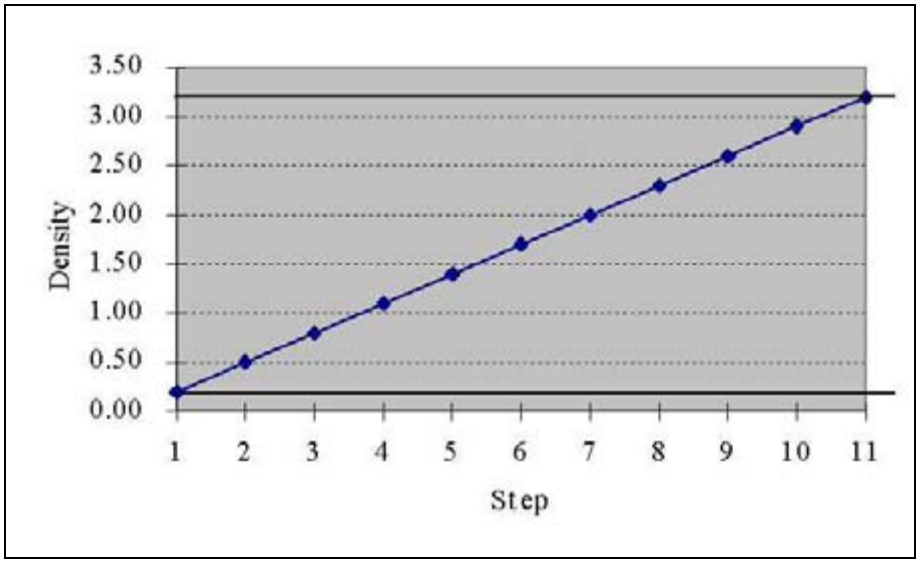

Fig. 4: Density

As shown in the graph above, the measurement values should form a straight line from the minimum density to the maximum density.

The important point here is that the measurement values make a straight line and the maximum density output corresponds to the settings.

If the measurement values deviate too far from the straight line and a maximum density corresponding to the settings is not output, printer and monitor output linearity settings, calibration, and other adjustments are necessary.

NOTICE

The graph above is an example of measurements taken when the maximum density is set to 3.2 D and the printed film is measured using a densitometer

➪ **Refer to the following data if the maximum density is set to 3.1 D, or if gradation analysis software is used to take measurements on the monitor.**

NOTICE

The LINEAR output cannot be set for some printer models.

➪ **In this case, try to select an output setting as close as possible to LINEAR.**

Ideal density values in LINEAR LINE

Step	1	2	3	4	5	6	7	8	9	10	11
3.2 D	0	0.32	0.64	0.96	1.28	1.60	1.92	2.24	2.56	2.88	3.20
3.1 D	0	0.31	0.62	0.93	1.24	1.55	1.86	2.17	2.48	2.79	3.10
12 Bit	0	410	819	1229	1638	2048	2457	2867	3276	3686	4095
8 Bit	0	26	51	77	102	128	153	179	204	230	255

Fig. 5: Linear density

Possible causes of non-linearity in measurement values:

- * Inadequate calibration of printer and high-definition monitor
- * Inadequate settings for CXDI printer parameters
- * Faults in printer or high-definition monitor

Fine adjustment

- As in the previous step, make the system "READY" by selecting the exposure mode "SMPTE" on the exposure screen. (Fig. 6 / p. 20)[Fig. SMPTE]

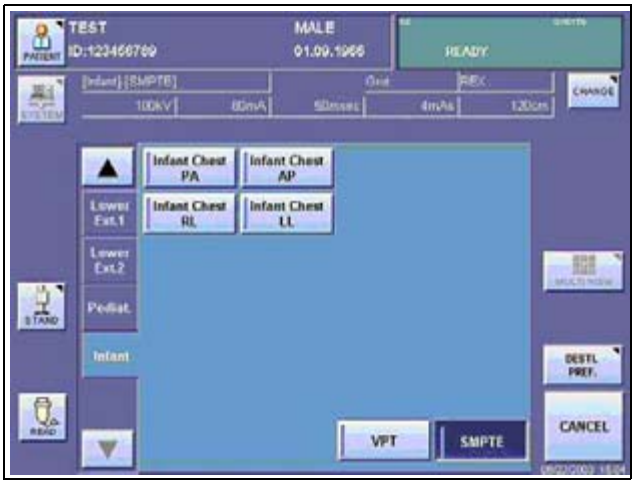

Fig. 6: SMPTE call

- Press the exposure button on the X-ray generator. After the exposure, adjust the trim so that the gray scale can be located in the center of the image.(Fig. 7 / p. 20)
  - * For correct density measurement of the 32-step chart, the gray scale must be printed in the center of an image to eliminate the shading feature.
  - * Data may not from a straight line near the minimum and maximum densities due to characteristics of the printer. Rotate the image on the QA screen, and reprint or retake measurements.

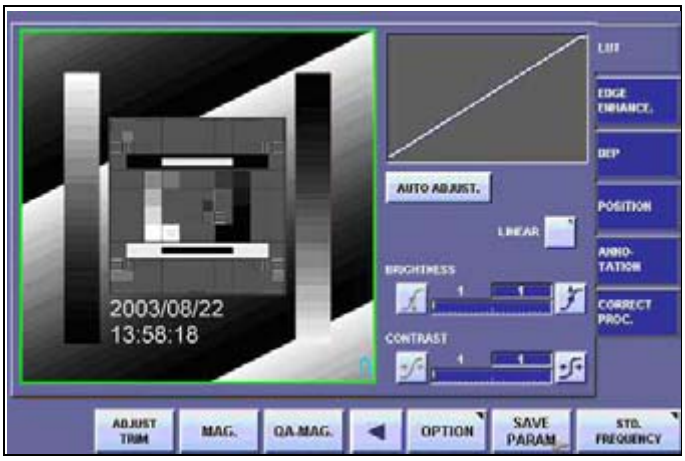

Fig. 7: Trim SMPTE

- Select the END STUDY and transfer the SMPTE pattern image to the printer or the high-definition monitor. (Fig. 8 / p. 21)

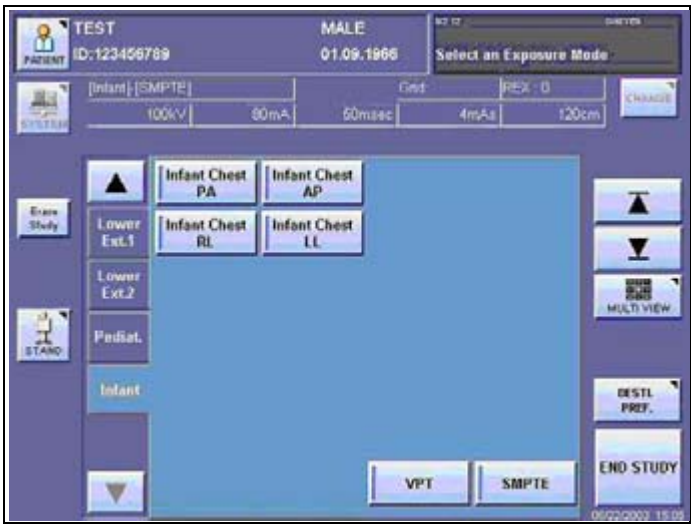

Fig. 8: SMPTE End Study

- On a printed film or on the monitor, measure the density of 32 steps of the grayscale on the test image.(Fig. 7 / p. 20)
  - *1: Measure the SMPTE image density on the film using a densitometer. The SMPTE image density on the high-definition monitor is measured using the gradation analysis software.
  - *2: The data for the SMPTE test image grayscale transferred by the CXDI are the values for the maximum density (3.20 in the case of the MLP 190) in the printer settings which have been changed into 32 uniform steps.
- Create a graph based on the 32 data steps previously measured, and make sure that the data points leading from the minimum density to the maximum density nearly form a straight line.

The characteristics of the printer may prevent the data from forming a straight line near the minimum and maximum densities. Rotate the image on the QA screen, and reprint or retake measurements.

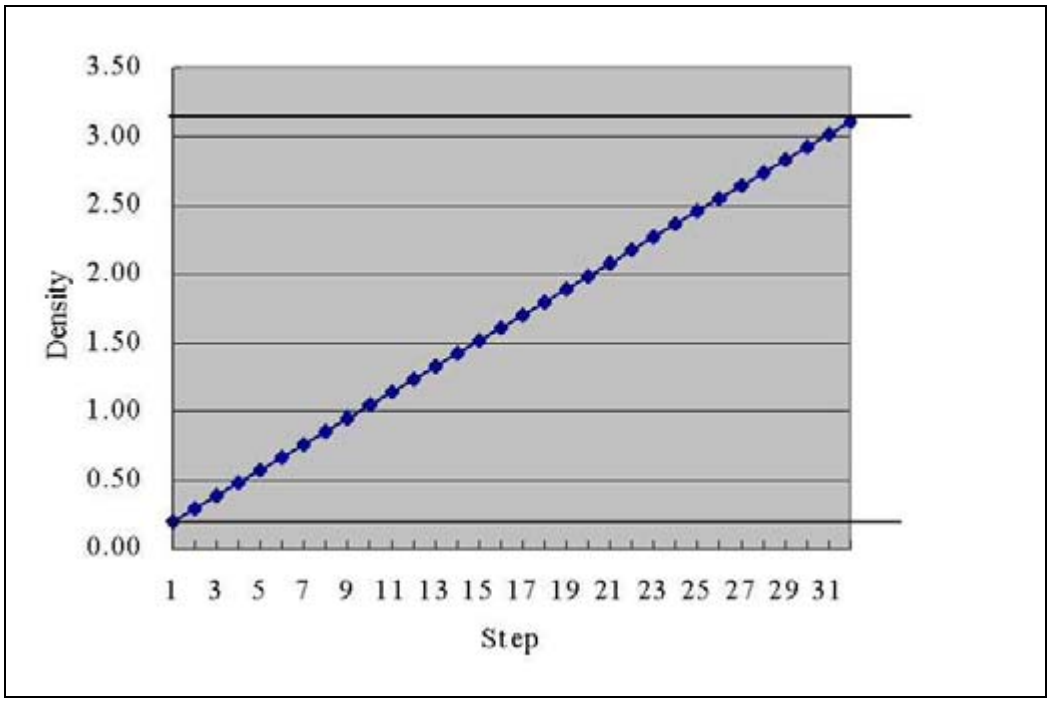

Fig. 9: Ideal Density Line

Ideal Density Data for Linear Line

Step	1	2	3	4	5	6	7	8	9	10	11
3.2 D	0	0.10	0.21	0.31	0.41	0.52	0.62	0.72	0.83	0.93	1.03
3.1 D	0	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
12 Bit	0	132	264	396	528	660	792	924	1056	1188	1320
8 Bit	0	8	16	24	32	41	49	57	65	74	82

Step	12	13	14	15	16	17	18	19	20	21	22
3.2 D	1.14	1.24	1.34	1.45	1.55	1.65	1.75	1.86	1.96	2.06	2.17
3.1 D	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
12 Bit	1453	1585	1717	1849	1981	2113	2245	2377	2509	2641	2774
8 Bit	90	98	106	114	122	131	139	147	155	164	172

Step	23	24	25	26	27	28	29	30	31	32
3.2 D	2.27	2.37	2.48	2.58	2.68	2.79	2.89	2.99	3.10	3.20
3.1 D	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10
12 Bit	2906	3038	3170	3302	3434	3566	3698	3830	3962	4095
8 Bit	180	188	196	205	213	221	229	238	246	255

Reference 1

In the data and graph shown below, the data was obtained by setting the Kodak MLP 190 to curve shape 0 (density linear), a maximum density of 3.20; the SMPTE test image was printed out, and the image data was measured.

As shown in the graph, the data points leading from the minimum density (film base density) to the maximum density nearly form a straight line.

SMPTE Density

Step	1	2	3	4	5	6	7	8	9	10	11
Percentage	0	10	20	30	40	50	60	70	80	90	100
Density (D)	0.17	0.46	0.75	1.03	1.36	1.66	1.98	2.29	2.59	2.90	3.20

Fig. 10: Reference

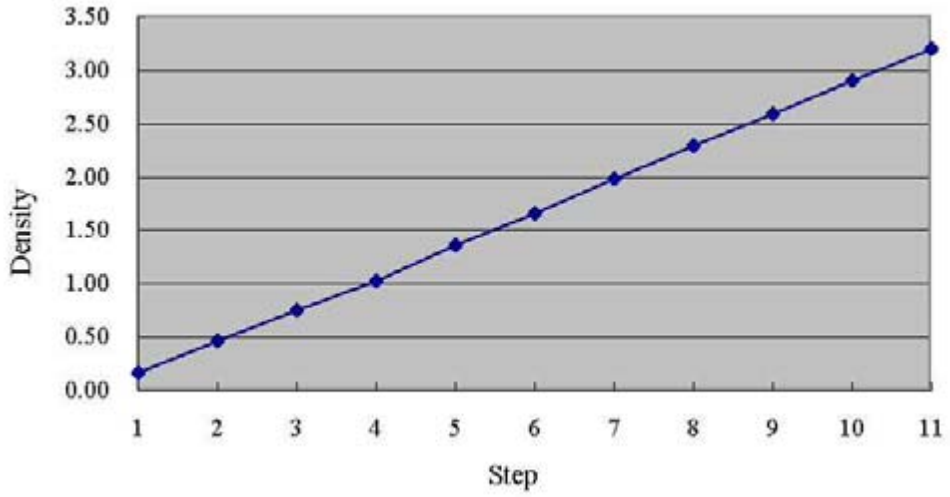

Fig. 11: Ideal Reference

* The printer parameter settings in this case are:

-A 320 -T NO -M CUBIC -m NORMAL -S CS000

Reference 2

This is an example of when the graph does not form a straight line.

In the data and graph shown below, the data was obtained by using the Kodak MLP 190 to print out the SMPTE test image, and the image data was measured.

(1): Shows normal data.

(2): Shows the case when the CXDI printer parameters are not set linearly.

(3): Shows the case when the printer was not calibrated properly.

SMPTE Density

Step	1	2	3	4	5	6	7	8	9	10	11
Percentage	0	10	20	30	40	50	60	70	80	90	100
(1) Normal	0.17	0.46	0.75	1.03	1.36	1.66	1.98	2.29	2.59	2.90	3.20
(2) Inadequate parameter settings	0.17	0.29	0.45	0.61	0.80	1.02	1.26	1.59	2.02	2.53	3.19
(3) Inadequate	0.17	0.33	0.55	0.81	1.08	1.36	1.66	1.97	2.28	2.59	2.94

Fig. 12: Ideal Reference

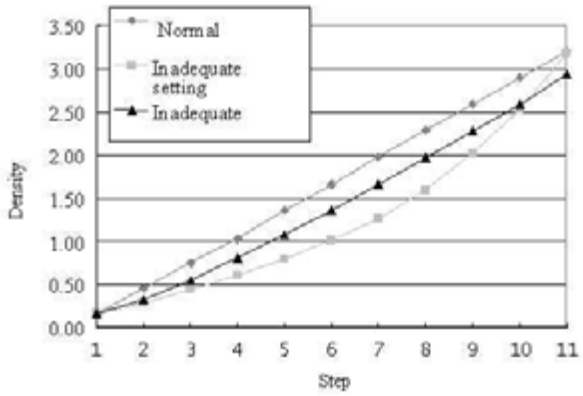

Fig. 13: Ideal Reference 2

* For improper parameters, the printer parameter "-S CS000" was not entered.

* For the inadequate calibration, the printer calibration data was set too low.

Purpose

This procedure is performed so that the image that is printed out or displayed on a high-definition monitor conforms exactly to the exposure image on the operating unit.

Notes

- The "Linearity Check of Transfer Image Density" procedure needs to be performed.
- If image adjustment for the printer or high-definition monitor has not been performed, use the "Gamma Correction Calculation Tool" from the Application User Interface in order to correct the gamma of the high definition monitor image so that it is the same as the printer image.
- Gamma correction is an image correction process for monitors and film. It is different from the contrast setting or grayscale setting.

  This procedure is simply a visual adjustment. As a result, differences may occur depending on the operator performing the procedure. Therefore, be sure to consult with the responsible technician before performing this adjustment.
- To make precise adjustments of the gamma of the operating unit, use the "Gamma Correction Calculation Tool" from the Application User Interface.

Preparation

The Option button used in gamma correction is normally hidden. Edit the MenuPara.ini file to display.

- Open MenuPara.ini file.
- Make the following changes, and overwrite the file.
  - Use Search in Edit to find OptionDlgBth.
  - Select Customize.
  - OptionDlgBtn = 0 <- Change to 1.

(0: Don"t display; 1: Display)

Fig. 14: Gamma Correction

Comparison of operating unit image and print image or monitor image.

- Start up the CXDI system.
- Adjust the brightness and contrast of the touch panel screen for optimum visibility using the two adjustment knobs at the back of the operating unit.
- On the exposure screen, select the exposure mode "SMPTE" and wait until "READY" appears.(Fig. 15 / p. 28)

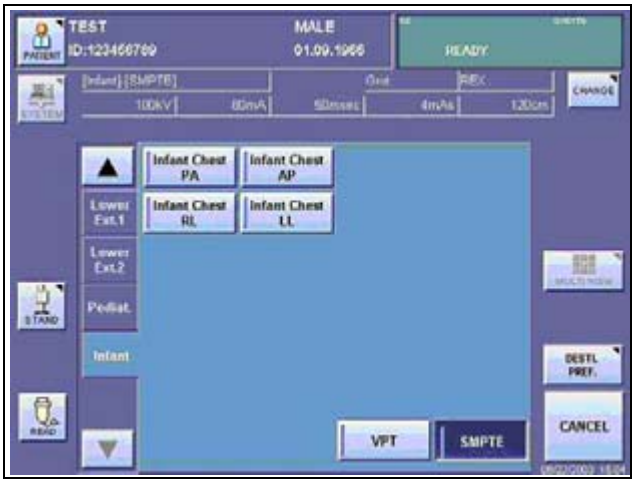

Fig. 15: SMPTE call

- On the X-ray generator, press the exposure button; after the exposure, select "END STUDY". Transfer the SMPTE pattern image to the printer or the high-definition monitor.(Fig. 16 / p. 28)

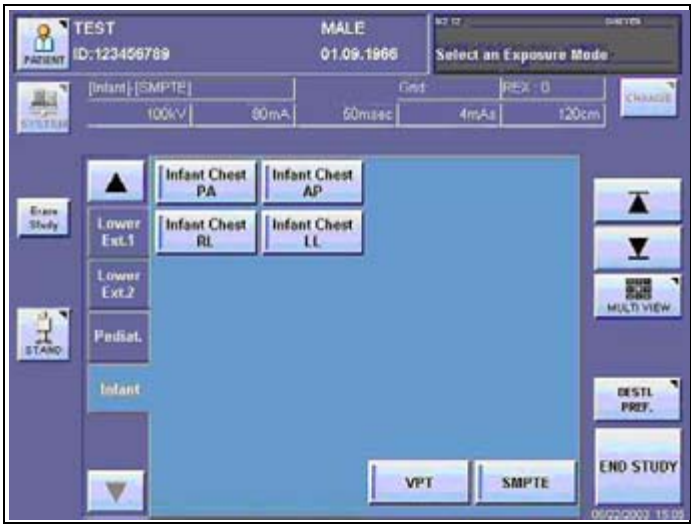

Fig. 16: SMPTE End Study

- Take the SMPTE pattern image again. On the QA screen, compare the image displayed on the operating unit screen with the film image printed above or with the image on the high-definition monitor. Make sure there is no difference in contrast and gradation between those images. Check both preview and magnify images.
  - If there are any differences between these images, perform the procedure described in "Operating Unit Image Gamma Correction" on the next page.
  - If there are no differences between these images, the steps are complete.

Operating Unit Image Gamma Correction

- On the QA screen displayed above, select the "Option" tab and the "Gamma Adjustment" button appears; then press this button.(Fig. 17 / p. 29)

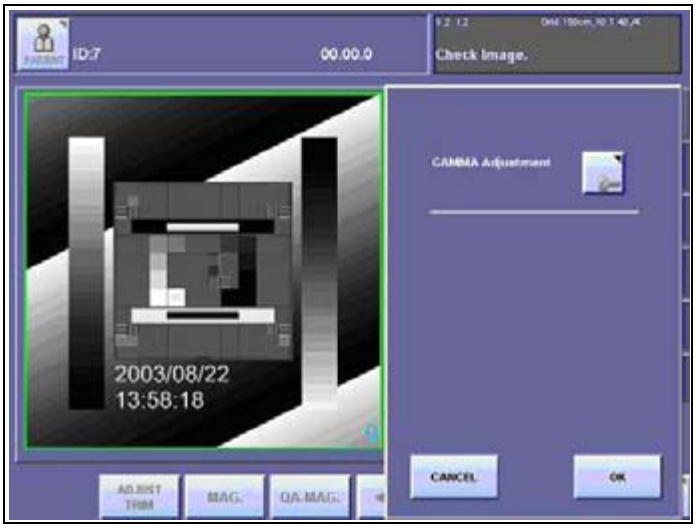

Fig. 17: SMPTE End Study 3

➪ The "Gamma Adjustment" window appears.

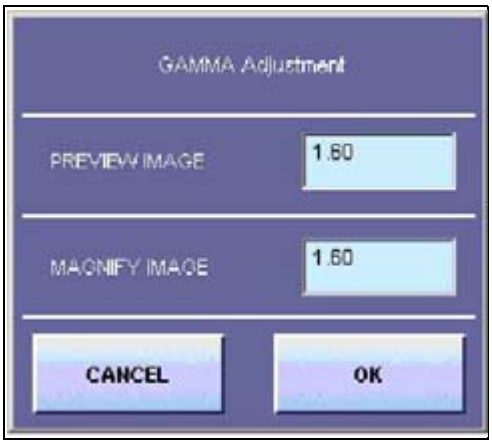

Fig. 18: Gamma Adjustment

- Change the value for the PREVIEW IMAGE, and press OK. The gamma correction for the operating unit screen is performed. [Fig. Gamma Adjustment] (Make sure the gamma value for the test image has changed on the operating unit screen.)

The gamma value is adjustable from 1.00 to 2.50.

If the image on the operating unit is lighter (whiter) than the film image, increase the value. On the contrary, if the image on the operating unit is darker (blacker) than the film image, decrease the value. The default gamma value is 1.60.

If the gamma value for the preview image is adjusted, then adjust the gamma value for the magnify image. The default gamma value for the magnify image is 1.60.

The correction steps are complete.

Error Return Values for Dicom Print Services

Example error	Return value	CXDI description/ Log output
Success	0x00	There is no log output in this case.
Invalid parameter	0x00000001	CXDI description :DICOM connection error (CCRTRANS_ERR_DICOMPARAM) The log output in this case is shown below. ---------- • -s Silent mode; do not print results of all print commands • -t) Set called AE title to title in Association RQ • -v Use verbose mode for DUL and SRV facilities • -x Canon Hidden Special Mode • node The host name that is running a print server • port TCP/IP port number of print server • file One or more files that contain preformatted images for printing • image) A list of one or more images to send
The server has not started up. Server fails to start.	0x00180012	CXDI description : DICOM connection error (CCRTRANS_ERR_NOT_CONNECT The log output in this case is shown below. ---------- -18-135933[d2]ERR: d0012 Attempt to connect to unknown host: test 18-135933[d2]ERR: 130012 Peer aborted Association(or never connected) 18-135933[d2]ERR:180012 Failed to establish association 18-132600[127]ERR:60012 TCP Initialization Error: Invalid argument 18-132600[127]ERR:130012 Peer aborted Association (or never connected) 18-132600[127]ERR:180012 Failed to establish association

Example error	Return value	CXDI description/ Log output
After a command request was sent to the server, an error was returned in response.	0x10	CXDI description: DICOM response error (CCRTRANS_ERR_RESP) The log output in this case is shown below. ---------- -(Not determined
After a command request was sent to the server, a warning was returned in response.	0x18	CXDI description : DICOM response warning (CCRTRANS_WRN_RESP) The transfer process was successful, but a warning was returned from the server. The log output in this case is shown below. ---------- -(Not determined)
The printer status has returned an error.	0x20	CXDI description : DICOM printer status error (CCRTRANS_ERR_PRN_STATUS) The log output in this case is shown below. ---------- -(Not determined)
The printer status has returned a warning.	0x28	CXDI description: DICOM printer status warning (CCRTRANS_WRN_PRN_STATUS) The transfer process was successful, but a warning was returned as the printer status. The log output in this case is shown below. ---------- -(Not determined)
Other errors	Values other than those above	CXDI description : DICOM communications error (CCRTRANS_ERR_DICOM_TRANSE) The log output in this case depends on the specific error. A typical example is shown below. ---------- -18-140933[d2]ERR : c0082 SRV Send (DATA SET) failed in SRV_SendDataSet 18-140933[d2]ERR : 190082 SRV Request failed in SRV_NCreateRequest 18-140933[d2]ERR : 70012 NULL_key passed to routineDUL_ReleaseAssociation

Precautions for connecting the server (reference Canon)

Equipment	Restrictions on connections
KodakMiil	• Transmitting the 0019 shadow group causes a failure, and the group is not received properly with the default. Its reception is enabled by setting the strictValidation parameter to Off in Miil.
FujitsuDr. ABLE	• Transmission is currently performed with the "1 study multi series/1 series 1 image" setting. However, since a multi format is used for the screen displays for each series under the Dr.ABLE specifications, the switching operations are a hassle. The user will find it more convenient if it is at all possible to change the setting to "1 study 1 series/1 series multi image." (These unusual data specifications were requested with a full awareness of their unusualness.) • With DICOM, the body parts (such as the abdomen and head) and their directions (such as PA and AP) belong to the series information. It therefore follows that a different series is required for a different body part or body part direction. This aspect is restricted by the DICOM standard rather than by the installation and other steps performed by us. In other words, multiple images with different body parts and their directions cannot be put together as a series. To remedy this problem, it would be helpful to devise a way of enabling viewers to reference different series at the same time.
Hitachi	• Transmission is currently performed with the "1 study multi series/1 series 1 image" setting. However, since a multi format is used for the screen displays for each series, the switching operations are a hassle. The user will find it more convenient if it is at all possible to change the setting to "1 study 1 series/1 series multi image."

Chapter	Page	Change
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